CLAIMS

1. A flow divider for receiving fluent matter from at least one source and dividing the fluent matter substantially equally among a plurality of destinations, the flow divider comprising:

(a) a housing;

(b) a first chamber in the housing, the first chamber being defined by a first radially inwardly facing surface and a first wall, the first chamber having an inlet in fluid communication with said at least one source and an outlet in fluid communication with a first one of said plurality of destinations;

(c) a first cylindrical hub rotatably mounted in the first chamber, a first radial slot extending through the first hub, and a second radial slot extending through the first hub transverse to the first slot;

(d) a first vane slidably mounted in the first slot and having opposite vane ends seating against the first radially inwardly facing surface;

(e) a second vane slidably mounted in the second slot and having opposite vane ends seating against the first radially inwardly facing surface;

(f) a second chamber in the housing, the second chamber being defined by a second radially inwardly facing surface and a second wall, the second chamber

having an inlet in fluid communication with said at least one source and an outlet in fluid communication with a second one of said plurality of destinations;

(g) a second cylindrical hub rotatably mounted in the second chamber and drivingly linked to the first hub, a third radial slot extending through the second hub, and a fourth radial slot extending through the second hub transverse to the third slot;

(h) a third vane slidably mounted in the third slot and abutting the second radially inwardly facing surface at opposite vane ends; and

(i) a fourth vane slidably mounted in the fourth slot and abutting the second radially inwardly facing surface at opposite vane ends.

2. The flow divider in accordance with claim 1, further comprising:

(a) a third chamber in the housing, the third chamber being defined by a third radially inwardly facing surface and a third wall, the third chamber having an inlet in fluid communication with said at least one source and an outlet in fluid communication with a third one of said plurality of destinations;

(b) a third cylindrical hub rotatably mounted in the third chamber and drivingly linked to the second hub, a fifth radial slot extending through the third hub, and a sixth radial slot extending through the third hub transverse to the fifth slot;

(c) a fifth vane slidably mounted in the fifth slot and abutting the third radially inwardly facing surface at opposite vane ends; and

(d) a sixth vane slidably mounted in the sixth slot and abutting the third radially inwardly facing surface at opposite vane ends.

3. The flow divider in accordance with claim 1, wherein the housing, hubs and vanes can all be disassembled for cleaning.

4. The flow divider in accordance with claim 1, wherein the inlets and the outlets are cavities formed in the respective radially inwardly facing surfaces, and each of said cavities is in fluid communication with a corresponding passage formed through the housing.

5. The flow divider in accordance with claim 4, further comprising a longitudinal passage formed through the housing, said passage being in fluid communication with each inlet and said source.

6. The flow divider in accordance with claim 1, wherein said first and second hubs are drivingly linked by at least one protrusion extending from the second hub into at least one corresponding recess formed in the first hub.

7. The flow divider in accordance with claim 6, wherein said at least one protrusion further comprises at least one longitudinal tang extending from one end of the second

hub, and said corresponding recess further comprises at least one longitudinal slot formed in one end of the first hub.

8. The flow divider in accordance with claim 1, further comprising a first end cap mounted to a first end of the housing, and a second end cap mounted to a second, opposite end of the housing, said end caps forming closures for the chambers.

9. The flow divider in accordance with claim 8, wherein said first end cap has a recess for receiving at least one protrusion formed on one of said hubs.

10. The flow divider in accordance with claim 9, wherein each of said hubs has a reduced-diameter necked region forming a shoulder, and an aperture is formed in each wall at each chamber for rotatably receiving said necked region of a corresponding hub.

11. A flow divider for receiving fluent matter from at least one source and dividing the fluent matter substantially equally among a plurality of destinations, the flow divider comprising:

(a) a first housing with a first chamber defined by a first radially inwardly facing cylindrical surface and a first wall, the first chamber having an inlet in fluid communication with said at least one source and an outlet in fluid communication with a first one of said plurality of destinations;

(b) a first cylindrical hub rotatably mounted in the first chamber, a first radial slot extending through the first hub, and a second radial slot extending through the first hub transverse to the first slot;

(c) a first vane slidably mounted in the first slot and having opposite vane ends seating against the first radially inwardly facing cylindrical surface;

(d) a second vane slidably mounted in the second slot and having opposite vane ends seating against the first radially inwardly facing cylindrical surface;

(e) a second housing rigidly mounted to the first housing, the second housing having a second chamber defined by a second radially inwardly facing cylindrical surface and a second wall, the second chamber having an inlet in fluid communication with said at least one source and an outlet in fluid communication with a second one of said plurality of destinations;

(f) a second cylindrical hub rotatably mounted in the second chamber and drivingly linked to the first hub, a third radial slot extending through the second hub, and a fourth radial slot extending through the second hub transverse to the third slot;

(g) a third vane slidably mounted in the third slot and abutting the second radially inwardly facing cylindrical surface at opposite vane ends; and

(h) a fourth vane slidably mounted in the fourth slot and abutting the second radially inwardly facing cylindrical surface at opposite vane ends.

12. The flow divider in accordance with claim 11, further comprising:

(a) at least a third housing rigidly mounted to the second housing, the third housing having a third chamber defined by a third radially inwardly facing cylindrical surface and a third wall, the third chamber having an inlet in fluid communication with said at least one source and an outlet in fluid communication with a third one of said plurality of destinations;

(b) a third cylindrical hub rotatably mounted in the third chamber and drivingly linked to the second hub, a fifth radial slot extending through the third hub, and a sixth radial slot extending through the third hub transverse to the fifth slot;

(c) a fifth vane slidably mounted in the fifth slot and abutting the third radially inwardly facing cylindrical surface at opposite vane ends; and

(d) a sixth vane slidably mounted in the sixth slot and abutting the third radially inwardly facing cylindrical surface at opposite vane ends.

13. The flow divider in accordance with claim 11, wherein the housings, hubs and vanes can all be disassembled for cleaning.

14. The flow divider in accordance with claim 11, wherein the inlets and the outlets are cavities formed in the respective radially inwardly facing cylindrical surfaces, and each of said cavities is in fluid communication with a corresponding passage formed through the respective housing.

15. The flow divider in accordance with claim 14, further comprising a longitudinal passage formed through each of said housings, said passages aligning when the housings are mounted together to form a longitudinal conduit in fluid communication with each inlet and said source.

16. The flow divider in accordance with claim 11, wherein said first and second hubs are drivingly linked by at least one protrusion extending from the second hub into at least one corresponding recess formed in the first hub.

17. The flow divider in accordance with claim 16, wherein said at least one protrusion further comprises a pair of longitudinal tangs extending from one end of the second hub, and said corresponding recess further comprises a pair of longitudinal slots formed in one end of the first hub.

18. The flow divider in accordance with claim 11, further comprising a first end cap mounted to a first end of the housings, and a second end cap mounted to a second, opposite end of the housings, said end caps forming closures for the chambers.

19. The flow divider in accordance with claim 18, wherein said first end cap has a recess for receiving at least one protrusion formed on one of said hubs.

20. The flow divider in accordance with claim 19, wherein each of said hubs has a reduced-diameter necked region forming a shoulder, and an aperture is formed in each wall of each chamber for rotatably receiving said necked region of a corresponding hub.

21. The flow divider in accordance with claim 11, wherein each of the housings has a tab on one end and a notch on an opposite end for matingly engaging a notch and a tab, respectively, on adjacent structures.

22. A device for receiving fluent matter from a plurality of sources and combining the fluent matter substantially equally to at least one destination, the device comprising:

(a) a housing;

(b) a first chamber in the housing, the first chamber being defined by a first radially inwardly facing surface and a first wall, the first chamber having an inlet in fluid communication with a first one of said plurality of sources and an outlet in fluid communication with said at least one destination;

(c) a first cylindrical hub rotatably mounted in the first chamber, a first radial slot extending through the first hub, and a second radial slot extending through the first hub transverse to the first slot;

(d) a first vane slidably mounted in the first slot and having opposite vane ends seating against the first radially inwardly facing surface;

(e) a second vane slidably mounted in the second slot and having opposite vane ends seating against the first radially inwardly facing surface;

(f) a second chamber in the housing, the second chamber being defined by a second radially inwardly facing surface and a second wall, the second chamber having an inlet in fluid communication with a second one of said plurality of sources and an outlet in fluid communication with said at least one destination;

(g) a second cylindrical hub rotatably mounted in the second chamber and drivingly linked to the first hub, a third radial slot extending through the second hub, and a fourth radial slot extending through the second hub transverse to the third slot;

(h) a third vane slidably mounted in the third slot and abutting the second radially inwardly facing surface at opposite vane ends; and

(i) a fourth vane slidably mounted in the fourth slot and abutting the second radially inwardly facing surface at opposite vane ends.

23. The device in accordance with claim 22, further comprising:

(a) a third chamber in the housing, the third chamber being defined by a third radially inwardly facing surface and a third wall, the third chamber having an inlet in fluid communication with a third one of said plurality of sources and an outlet in fluid communication with said at least one destination;

(b) a third cylindrical hub rotatably mounted in the third chamber and drivingly linked to the second hub, a fifth radial slot extending through the third hub, and a sixth radial slot extending through the third hub transverse to the fifth slot;

(c) a fifth vane slidably mounted in the fifth slot and abutting the third radially inwardly facing surface at opposite vane ends; and

(d) a sixth vane slidably mounted in the sixth slot and abutting the third radially inwardly facing surface at opposite vane ends.

24. The device in accordance with claim 22, wherein the housing, hubs and vanes can all be disassembled for cleaning.

25. The device in accordance with claim 22, wherein the inlets and the outlets are cavities formed in the respective radially inwardly facing surfaces, and each of said cavities is in fluid communication with a corresponding passage formed through the housing.

26. The device in accordance with claim 25, further comprising a longitudinal passage formed through the housing, said passage being in fluid communication with each inlet and said destination.

27. The device in accordance with claim 22, wherein said first and second hubs are drivingly linked by at least one protrusion extending from the second hub into at least one corresponding recess formed in the first hub.

28. The device in accordance with claim 27, wherein said at least one protrusion further comprises at least one longitudinal tang extending from one end of the second hub, and said corresponding recess further comprises at least one longitudinal slot formed in one end of the first hub.

29. The device in accordance with claim 22, further comprising a first end cap mounted to a first end of the housing, and a second end cap mounted to a second, opposite end of the housing, said end caps forming closures for the chambers.

30. The device in accordance with claim 29, wherein said first end cap has a recess for receiving at least one protrusion formed on one of said hubs.

31. The device in accordance with claim 30, wherein each of said hubs has a reduced-diameter necked region forming a shoulder, and an aperture is formed in the wall at each chamber for rotatably receiving said necked region of a corresponding hub.